

## 14.0 AOC 18 – DECONTAMINATION BUILDING 3185

### 14.1 LOCATION OF STUDY AREA

Decontamination Building 3185 comprises approximately 0.3 acre within the Cantonment Area at the Fort McClellan, Alabama Army Installation (Fig. 1). The study area boundary was devised by adding a 70-ft buffer outside of the Decontamination Building site boundary.

### 14.2 AERIAL PHOTOGRAPH QUALITY ISSUES

A few photograph quality issues were encountered during photograph interpretation. They were corrected as follows:

- X **Quality** - In many areas of the photographs, the dynamic range of brightness values was insufficient to distinguish land cover classes. Due to extreme brightness (almost white), ground cover such as grass, bare soil, trails, and roads could not be differentiated. Buildings could only be discerned by stereoscopic viewing. Where appropriate, the problem areas of the photographs were subset and image enhancement techniques were applied. Simple adjustments to the brightness and contrast were conducted, or in more severe cases, a histogram equalization in the range of the lookup table was performed on the specific area where interpretation was difficult. Photographic interpretation could not be conducted on the 1937 photographs due to the poor quality of the photographs.
- X **Rectification** - Although second- and third-order transformations were used in the rectification of the digital photographs, several rectified photographs contained too much error within the Decontamination Building area to accurately digitize land use/cover polygons. Factors contributing to the error included: (1) insufficient ground control points (GCPs) due to pronounced changes in land cover between years, (2) photographic distortion (location of the site in relation to the center of the photograph and the angle of the camera/aircraft when the photograph was acquired), and (3) terrain distortion (a single photograph may cover a large geographic area of varying elevations even though the site of interest may have little topographic relief). To improve the photographic registration of the study area, the Decontamination Building was subset from the rectified digital photographs in question and the newly-created image files were rectified separately.

### 14.3 FINDINGS

Complete photographic coverage of the study area was available for eight years of photographic coverage from 1937 to 1994. A total of 81 anomalies were identified in the year-by-year land cover analysis (Fig. 2). All anomalies were inspected to ascertain the cause of each anomaly; all anomalies were resolved. Anomalies potentially associated with waste disposal or chemical training activities were determined to be of potential concern and should be assessed by the USAESCH. During the final quality assurance review of the land use/cover anomalies, a numbering error was detected; there is no anomaly associated with the number 70. This erroneous anomaly is identified as “QA” in Table 2 and will not be discussed further. Of the anomalies identified, 78 were caused by roads, construction and removal of buildings, sidewalks, landscaping, and paved areas. The remaining two

anomalies were the result of the clearing of trees and groundcover and are considered to be of potential concern.

**1937.** The 1937 photographs were not interpreted because of the poor quality of the available photographs (see Fig. 3a). However, no pre-existing anomalous areas were identified during a visual inspection of the photographs.

**1937 to 1940.** Since the 1937 photographs were not interpreted, the land use/cover was not available. The 1940 photographs were interpreted and no anomalies were identified (see Fig. 3b).

**1940 to 1944.** Seven anomalies were identified during the land cover analysis for the years 1940 and 1944 (see Table 1 and Fig. 3c). Five of the anomalies were the result of buildings and roads. The remaining two anomalies are of potential concern and were the result of the clearing of trees and groundcover (2 anomalies).

**1944 to 1954.** Twenty-six anomalies were identified during the land cover change analysis for the years 1944 and 1954 (see Table 1 and Fig. 3d). All twenty six anomalies were the result of roads, buildings, sidewalks, paved areas, and landscaping. There are no anomalies of potential concern.

**1954 to 1961.** Twelve anomalies were identified during the land cover change analysis for the years 1954 and 1961 (see Table 1 and Fig. 3e). All twelve anomalies were the result of new roads and pre-existing roads, buildings, sidewalks, paved areas, and landscaping. There are no anomalies of potential concern.

**1961 to 1969.** Ten anomalies were identified during the land cover change analysis for the years 1961 and 1969 (see Table 1 and Fig. 3f). All ten anomalies were the result of pre-existing roads, buildings, sidewalks, paved areas, and landscaping. There are no anomalies of potential concern.

**1969 to 1982.** Fourteen anomalies were identified during the land cover change analysis for the years 1969 and 1982 (see Table 1 and Fig. 3g). All fourteen anomalies were the result of pre-existing roads, buildings, sidewalks, paved areas, and landscaping. There are no anomalies of potential concern.

**1982 to 1994.** Eleven anomalies were identified during the land cover change analysis for the years 1982 and 1994 (see Table 1 and Fig. 3h). All fourteen anomalies were the result of pre-existing roads, buildings, sidewalks, paved areas, and landscaping. There are no anomalies of potential concern.

Fig 1



Fig 2



**Table 1. Decontamination Building 3185 - Anomaly Resolution**

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies <sup>1</sup>
	1	1944	Road	8, 11, 12, 18 - 20, 34, 46, 56, 71
Yes	2	1944	Cleared area	22 - 25, 27 - 33
	3	1944	Partially cleared area (associated with road construction)	9, 10
	4	1944	Building	16
Yes	5	1944	Cleared area	13, 15, 17, 45, 55, 65, 77
	6	1944	Building	14
	7	1944	Building	26
	8	1954	Pre-existing road (first visible 1944)	1, 34, 46, 56, 71
	9	1954	Road	3, 34, 46, 56, 71
	10	1954	Landscaping	3
	11	1954	Landscaping	1
	12	1954	Road	1, 34, 46, 56, 71
	13	1954	Road	5, 34, 46, 56, 71
	14	1954	Road (former building - visible in 1944)	6, 46, 56, 71
	15	1954	Landscaping	5, 45, 55, 65, 77
	16	1954	Landscaping (former building - visible in 1944)	4, 45, 55, 65, 77
	17	1954	Sidewalk	5, 44, 48, 61, 74
	18	1954	Sidewalk	1, 44, 48, 61, 74
	19	1954	Landscaping (former road - visible 1944)	1, 45
	20	1954	Pre-existing road	1, 34, 46, 56, 71
	21	1954	Paved area	39, 54, 69, 81
	22	1954	Sidewalk	2, 36, 44, 48, 61, 74
	23	1954	Landscaping	2, 43, 53, 64, 76
	24	1954	Landscaping	2, 42, 52, 62, 63, 75
	25	1954	Building	2, 41, 51, 66, 78
	26	1954	Paved area (former building - visible in 1944)	7, 39, 54, 69, 81
	27	1954	Landscaping	2, 37
	28	1954	Paved area	2, 39, 54, 69, 81

<b>Of Potential Concern?</b>	<b>Anomaly #</b>	<b>Year of Change</b>	<b>Discussion</b>	<b>Related Anomalies<sup>1</sup></b>
	29	1954	Sidewalk	2, 40, 50, 67, 79
	30	1954	Trees near building	2
	31	1954	Trees near building	2
	32	1954	Landscaping	2, 35, 47, 57 - 60, 72, 73
	33	1954	Landscaping	2, 37, 38, 49, 68, 80
	34	1961	Pre-existing road (first visible 1944)	1, 8, 9, 12, 13, 20, 46, 56, 71
	35	1961	Road (former landscaping - visible 1954)	32, 46, 56, 71
	36	1961	Road (former sidewalk - visible 1954)	22, 46, 56, 71
	37	1961	Road (former landscaping - visible 1954)	27, 33, 46, 56, 71
	38	1961	Pre-existing landscaping (first visible 1954)	33, 49, 68, 80
	39	1961	Pre-existing paved area (first visible 1954)	21, 26, 28, 54, 69, 81
	40	1961	Pre-existing sidewalk (first visible 1954)	29, 50, 67, 79
	41	1961	Pre-existing building (first visible 1954)	25, 51, 66, 78
	42	1961	Pre-existing landscaping (first visible 1954)	24, 52, 62, 63, 75
	43	1961	Pre-existing landscaping (first visible 1954)	23, 53, 64, 76
	44	1961	Pre-existing sidewalk (first visible 1954)	17, 18, 22, 48, 61, 74
	45	1961	Pre-existing landscaping (first visible 1954)	5, 15, 16, 19, 55, 65, 77
	46	1969	Pre-existing road (first visible 1944)	1, 8, 9, 12 - 14, 20, 34 - 37, 56, 71
	47	1969	Pre-existing landscaping (first visible 1954)	32, 58, 60, 72, 73
	48	1969	Pre-existing sidewalk (first visible 1954)	17, 18, 22, 44, 61, 74
	49	1969	Pre-existing landscaping (first visible 1954)	33, 38, 68, 80
	50	1969	Pre-existing sidewalk (first visible 1954)	29, 40, 67, 79
	51	1969	Pre-existing building (first visible 1954)	25, 41, 66, 78
	52	1969	Pre-existing landscaping (first visible 1954)	24, 42, 62, 63, 75
	53	1969	Pre-existing landscaping (first visible 1954)	23, 43, 64, 76
	54	1969	Pre-existing paved area (first visible 1954)	21, 26, 28, 39, 69, 81
	55	1969	Pre-existing landscaping (first visible 1954)	5, 15, 16, 45, 65, 77



Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies <sup>1</sup>
	56	1982	Pre-existing road (first visible 1944)	1, 8, 9, 12 - 14, 20, 34 - 37, 46, 71
	57	1982	Tree-covered (former landscaping - first visible 1954)	32
	58	1982	Pre-existing landscaping (first visible 1954)	32, 47, 72
	59	1982	Road	32, 71
	60	1982	Pre-existing landscaping (first visible 1954)	32, 47, 73
	61	1982	Pre-existing sidewalk (first visible 1954)	17, 18, 22, 44, 48, 73, 74
	62	1982	Tree-covered (former landscaping - first visible 1954)	24, 42, 52
	63	1982	Pre-existing landscaping (first visible 1954)	24, 42, 52, 75
	64	1982	Pre-existing landscaping (first visible 1954)	23, 43, 53, 76
	65	1982	Pre-existing landscaping (first visible 1954)	5, 15, 16, 45, 55, 77
	66	1982	Pre-existing building (first visible 1954)	25, 41, 51, 78
	67	1982	Pre-existing sidewalk (first visible 1954)	29, 40, 50, 79
	68	1982	Pre-existing landscaping (first visible 1954)	33, 38, 49, 80
	69	1982	Pre-existing paved area (first visible 1954)	21, 26, 28, 39, 54, 81
	70	1994	QA (there is no anomaly 70)	
	71	1994	Pre-existing road (first visible 1944)	1, 8, 9, 12 - 14, 20, 34 - 37, 46, 56, 59
	72	1994	Pre-existing landscaping (first visible 1954)	32, 47, 58
	73	1994	Pre-existing landscaping (first visible 1954)	32, 47, 60
	74	1994	Pre-existing sidewalk (first visible 1954)	17, 18, 22, 44, 48, 61
	75	1994	Pre-existing landscaping (first visible 1954)	24, 42, 52, 63
	76	1994	Pre-existing landscaping (first visible 1954)	23, 43, 53, 64
	77	1994	Pre-existing landscaping (first visible 1954)	5, 15, 16, 45, 55, 65
	78	1994	Pre-existing building (first visible 1954)	25, 41, 51, 66
	79	1994	Pre-existing sidewalk (first visible 1954)	29, 40, 50, 67
	80	1994	Pre-existing landscaping (first visible 1954)	33, 38, 49, 68
	81	1994	Pre-existing paved area (first visible 1954)	21, 26, 28, 39, 54, 69

<sup>1</sup> Related anomalies refer to anomalies which are carried forward from year to year (e.g., a trail) or anomalies which change (e.g., the extension or widening of a trail or cleared area).

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Fig. 3a



Fig. 3b



Fig. 3c





Fig. 3d



Fig. 3e



Fig. 3f



Fig. 3g





Fig. 3h



#### **14.4 ANOMALIES OF POTENTIAL CONCERN**

Eighty anomalies were identified during the photographic interpretation of Decontamination Building 3185. All anomalies have been resolved and two are considered to be of potential concern. To facilitate anomaly tracking, the anomalies of potential concern were mapped using the anomaly tracking number assigned in the year-by-year analysis (see Table 2 and Fig. 4). Table 2 provides information for each anomaly of potential concern, including the anomaly tracking number, coordinates for the approximate center of the anomaly (coordinates provided in Alabama State Plane East, North American Datum [NAD] 83), the year the change occurred, and the reason for the anomaly.

**Table 2. Decontamination Building 3185 - Anomalies of Concern**

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
2	668496.97045	1166250.20653	1944	This large area was cleared prior to the acquisition of the 1944 photographs. By 1954, Building 3185 had been built and landscaping and sidewalks had been installed. The building and associated infrastructure remained visible in all photographs acquired between 1961 and 1994.
5	668589.05579	1166199.77885	1944	This area was cleared prior to the acquisition of the 1944 photographs. By 1954, a road, landscaping, and sidewalks had been installed. Photography acquired from 1961 through 1994 shows the area has been maintained.

**Fig 4**